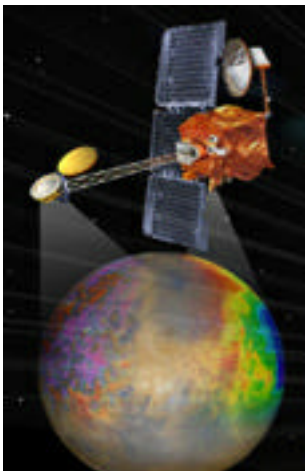


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Odyssey approaches Mars



THE MARS

ALL SYSTEMS ARE GO FOR THE OCT. 23 ARRIVAL OF JPL'S 2001 MARS ODYSSEY SPACECRAFT AT THE RED PLANET.

Odyssey is nearing the completion of its journey of 460 million kilometers (286 million miles). As this article was written, a final trajectory correction maneuver—the fourth one during cruise phase—was planned for the evening of Oct. 11. Orbit insertion begins at 7:30 p.m. Pacific time on the 23rd.

“The flight team has completed its preparations for Mars orbit insertion,” said Odyssey Mission Manager David A. Spencer. “The commands for orbit insertion will be uplinked to the spacecraft on Oct. 15. After that, we will closely monitor the spacecraft’s progress as it approaches Mars and executes the orbit insertion burn.”

Spencer said another contingency maneuver will only be exercised if Odyssey’s trajectory is significantly off-course within a day of arrival. “While TCM-5 has been fully tested and we are ready to do it if necessary, there is a very low probability that it will be needed,” he said.

Mars orbit insertion is expected to result in an orbit period of just under 20 hours. However, if Odyssey’s post-insertion orbit period is 22 hours or greater, a procedure called a period reduction maneuver will be performed to fire the spacecraft’s thrusters to lower the orbit period to the needed 20 hours. If needed, this maneuver will be executed three orbits after orbit insertion.

Two days after orbit insertion, aerobraking will begin, a technique that brings the spacecraft into its circular science orbit. Aerobraking slows the craft down by using frictional drag as it flies through the upper part of the planet’s atmosphere. It is expected that aerobraking will take about 80 days, and 380 orbits, to complete.

Odyssey carries three scientific instruments designed to tell us what the Martian surface is made of and provide vital information about potential radiation hazards for future human explorers.

The thermal emission imaging system will determine Mars’ surface mineralogy, including providing data on localized deposits associated with hydro-thermal and subsurface water. The gamma ray spectrometer will play a lead role in determining the elemental makeup of the Martian surface; an experiment using this instrument and two neutron detectors will possibly be able to calculate Mars’ hydrogen abundance, thus inferring the presence of water. The Martian radiation environment experiment will characterize aspects of the radiation environment both on the way to Mars and in the Martian orbit. This experiment will attempt to predict anticipated radiation doses that would be experienced by future astronauts and help determine possible effects of Martian radiation on human beings.

Launched on April 7, 2001, Odyssey’s primary science mapping period runs from January 2002 to early August 2004.

Lockheed will build Mars '05 recon orbiter

NASA has selected Lockheed Martin Astronautics, Denver, to build the JPL-managed Mars Reconnaissance Orbiter, a spacecraft scheduled for launch in August 2005 to return the highest-resolution images yet of the Red Planet.

Lockheed Martin will build the orbiter bus and be responsible for integrating and testing six science instruments and two engineering payloads. Lockheed Martin will also provide spacecraft operations support for the five-and-a-half year mission.

The contract awarded to Lockheed is for \$145 million, including the development and operations phases.

The 1,800-kilogram (3,970-pound) orbiter is twice the mass and will return more than 12 times the data of Mars Global Surveyor, which has been in orbit around Mars for more than four years and has returned more than 101,000 images of the surface. The Global Surveyor spacecraft was also build by Lockheed Martin under contract to JPL.

The Mars Reconnaissance Orbiter science payload currently includes the following instruments: a high-resolution camera, a visible-near infrared imaging spectrometer, an atmospheric sounder, a wide-angle color imager, a shallow sub-surface sounding radar and a context imager. The engineering payload consists of a telecommunications package, which will provide surface communications relay and approach navigation support, and an optical navigation camera that will demonstrate precision entry navigation capability for future landers and orbiters.

“With its specially designed instrument complement, this mission will investigate the surface of Mars at a resolution never before achieved from orbit,” said Jim Graf, the Mars Reconnaissance Orbiter project manager at JPL. “We will be able to resolve features the size of beach balls. The images will help determine future landing sites that are both scientifically interesting and free from landing hazards.”

“The goal of this orbiter is to understand the history of water on Mars by observing its atmosphere, surface and subsurface in unprecedented detail,” said Dr. Richard Zurek, the Mars Reconnaissance Orbiter project scientist at JPL. “This mission will identify the best sites for a new generation of landed vehicles to explore, by virtue of its ability to find local evidence of the chemical and geological ‘finger-prints’ of water and other critical processes. The orbiter will explore from orbit several hundred localities on the surface of Mars, observing details that were previously only visible to landers.”

Surprise! Galileo spots tallest-ever volcanic plume

By Guy Webster

Color images of the volcanic plumes on Io are available online at <http://www.jpl.nasa.gov/images/io>.

THE SOLAR SYSTEM

Jupiter’s moon Io has pulled a surprise on JPL’s Galileo spacecraft, hurling up the tallest volcanic plume ever seen, which arose from a previously unknown volcano.

A different volcano had been lofting a plume seven months earlier, but Galileo saw no sign of that plume during its latest Io flyby in early August.

Adding to the surprise, for the first time a Galileo instrument has caught particles freshly released from an eruption, giving scientists a direct sample of Io material to analyze. “This was totally unexpected,” said the leader of that experiment, Dr. Louis Frank of the University of Iowa. “We’ve had wonderful images and other remote sensing of the volcanoes on Io before, but we’ve never caught the hot breath from one of them until now. Galileo smelled the volcano’s strong breath and survived.”

The Jupiter-orbiting spacecraft has been gradually transmitting to Earth the new pictures and data from its flight over Io’s north pole in early August, said Dr. Eilene Theilig, Galileo project manager at JPL. “Io just keeps amazing everyone,” she said. “Now we’re eager to see what will be happening there when Galileo flies near Io’s south pole in two weeks.”

Galileo engineers and scientists had anticipated that the Aug. 6 flyby (Aug. 5, Pacific time) might take the spacecraft right through gases rising from a volcano named Tvashtar near Io’s north pole. Tvashtar had been lofting a high

plume when last seen seven months earlier by both Galileo and the passing Cassini spacecraft. However, the Tvashtar plume has not been found in images from the August flyby. Researchers were startled to find, instead, that a previously unknown volcano just 600 kilometers (370 miles) from Tvashtar was spewing a grand plume as Galileo passed.

“After not seeing any active plumes at all in Io’s high-latitude regions during the first five years of Galileo’s tour, we’ve now seen two this year,” said Galileo imaging team member Dr. Alfred McEwen of the University of Arizona. The latest appears as a back-lit bulge above Io’s surface in two newly released images. A third new image shows a white ring of material from the plume that has fallen back to the moon’s surface, painting a circle around the source of the eruption. A fourth shows another new large plume deposit near Io’s north pole.

The new plume rises at least 500 kilometers (more than 300 miles) above ground, McEwen estimated, nearly 10 percent higher than the tallest ever seen before on Io.

Scientists using Galileo’s infrared mapping instrument have pinpointed the site of the eruption as a new hot spot at a location that was not known to be an active volcano, said JPL volcanologist Dr. Rosaly Lopes. It was surprising that the site leapt to such intense activity so abruptly with so little evidence of former volcanism,

she said.

“Galileo flew between two great volcanoes,” Lopes said. “The plume we knew about might have settled down before we got there, but this new one sprang up suddenly.”

The particles detected in Galileo’s plasma science instrument as the aging spacecraft sped within 194 kilometers (120 miles) of Io’s surface likely came from the new hot spot rather than Tvashtar, Frank said. The volcanic material reached the spacecraft no more than a few minutes after rushing out of the source vent on the ground. The particles are apparently snowflakes made of sulfur-dioxide molecules with as many as 15 to 20 molecules clumped together in each flake.

Galileo is on course to fly about as close to Io again on Oct. 15 at 6:23 p.m. Pacific time. Its trajectory will take it close to Io’s south pole, which may provide a look at details of another new hot spot near there identified from infrared mapping data this year. The polar passes in August and this month were also designed to provide data indicating whether Io generates its own magnetic field, as its sibling moon Ganymede does and Earth does.

Io is the innermost of Jupiter’s four largest moons and the most volcanically active world in the solar system. Galileo will get its sixth and final encounter with Io in January 2002. It has also flown 27 close approaches to Jupiter’s other three large moons: Europa, Ganymede and Callisto.

Earth science proposals proceed

The NASA Earth Science Enterprise has announced the selection of six missions to proceed to Step 2 of the Earth System Science Pathfinder proposal process. JPL has project management responsibility for four of the six selected proposals.

After evaluation of the Step 2 proposals, which are due on Jan. 11, 2002, NASA intends to select three or four missions to proceed through a one-year formulation phase. Two or three will then be selected to proceed through implementation and flight.

These \$200 million-class exploratory Earth science missions are designed to make first time measurements of key Earth system phenomena, producing conclusive scientific results addressing focused science questions.

The four JPL-led proposals are:

Aquarius

For the first time, NASA will measure the global concentration of salt at the ocean surface, which will lead to discoveries about the ocean circulation, the global cycling of freshwater, and climate. The Aquarius satellite mission will make these measurements using a very accurate active/passive radiometer system. The principal investigator is Dr. Chester Koblinsky, NASA Goddard Space Flight Center.

Orbiting Carbon Observatory

This mission will make the first time-dependent, global measurements of atmospheric carbon dioxide with the precision and resolution needed to characterize its production and loss rates. These measurements will improve our understanding of the processes that regulate atmospheric carbon dioxide, enabling more reliable forecasts of climate change. The principal investigator is Dr. David Crisp, JPL.

Earth Change and Hazard Observatory

This is an unprecedented, dedicated interferometric radar mission that addresses two of the NASA Earth Science Enterprises research priorities: the relation between earthquake and volcano hazards and minute surface deformations, and the relation between sea level and climate change and changes in polar ice sheets and glaciers. The principal investigator is Dr. Jean-Bernard Minster, Scripps Institution of Oceanography.

Hydrosphere State Mission

The mission will provide the first global view of the Earth's changing soil moisture and surface freeze/thaw conditions, enabling new scientific studies of global change and atmospheric predictability and making new hydrologic applications possible. The principal Investigator is Dr. Dara Entekhabi, Massachusetts Institute of Technology.

The following JPL employees were recently honored for completing 20 or more years of service during the third quarter of 2001.

45 years: Robert Mueller, Joseph Savino, Wayne Arens, William Breckenridge, John Biles Jr.

40 years: Fred Tomey, Walter Walker, Walter Mushagian.

35 years: Peter Breckheimer, Robert Keskinen, Kenneth Harstad, Roger Dick, Jerry Neal, James Campbell, Neil Yarnell, Arthur Lane, Dennis Page.

30 years: Joseph Ajello, Irene Chan, Ara Chutjian, Parker Cowgill, James Curtis, Moroni Dewegeli, Bruce Goldstein, John McKinney, Gerald O'Connell, Tetsuo Ozawa, Anthon Rasmussen, David Rodgers, Donald Sweetnam, Sandi Thomas, James Weese.

25 years: Vincent Anicich, Robert

Aster, Bryan Bell, F. Sharon Chapman, Taher Daud, John Davidson, Allen Hubbard, John Lai, Blair Lewis, Juergen Linke, Gary Parks, Neil Toy, Peter Wannier, Sien-Chong Wu, Richard Zurek.

20 years: Annie Aroyan, Teresa Bailey, Suzette Baugh, Gregory Bearman, Charles Bell, Stephen Benskin, Marie Case, Alice Cobbin, Norberto Cresta, Valerie Duval, Deborah Fambro, Charles Garner, Paula Goodrich, Jeffrey Hilland, Cheng-Hsien Hsieh, Andrew Kwok, Lynn Lowry, Colleen Miyahara, Karen Moran, Patrick O'Brien, Kermit Pederson, Rodney Rohla, Charles Simon, Wallace Tai, David Thiessen, Chris Webster.

For a complete list of honorees for the third quarter, log on to the Employee Services & Recognition home page: <http://eis/sec614/reward>.

Service awards

Benefits enrollment this month

Medical insurance panel discussion set for Oct. 15

JPL's annual benefits enrollment period is now underway through Oct. 31. The Benefits Office urges employees to review their benefits and decide if changes are needed for the year to come.

Information packages have already been sent to employees. These packets include a summary of benefit changes for 2002, new premium rates and plan comparisons. Also included are instructions on how to use the Web to verify your current benefit elections and submit desired changes. Review this information carefully.

If you want to change your benefits or enroll in a Health Care or Dependent (Day Care) Spending Account, you need to enroll through the Web. Your enrollment takes effect Jan. 1, 2002. Unless you want

to make a change or have a spending account for 2002, you don't have to do anything.

To assist employees in comparing each of JPL's medical plans, the Benefits Office has invited representatives from each health plan—Kaiser, CIGNA, Blue Cross and CaliforniaCare—to participate in a panel discussion on Monday, Oct. 15 from 1:30 to 3 p.m. in the 167 conference room.

In addition, representatives from the Benefits Office and each health plan will be on Lab from 11:30 a.m. to 1:30 p.m. on the following days to answer individual questions:

- Oct. 17, 167 cafeteria
- Oct. 24, 167 cafeteria
- Oct. 30, 303 cafeteria

For more information, call the Benefits Office at ext. 4-3760.

Correction

An article in the Sept. 28 issue of Universe on the Labwide cleanup effort should have indicated that among the organizations represented on the cleanup teams were Occupational Safety Office, Property, Acquisitions, Facilities, Environmental Affairs Office and the Flight Hardware Logistics Program.

Special Events Calendar

Ongoing Support Groups

Alcoholics Anonymous—Meetings are available. Call the Employee Assistance Program at ext. 4-3680 for time and location.

Codependents Anonymous—Meeting at noon every Wednesday. Call Occupational Health Services at ext. 4-3319.

Gay, Lesbian and Bisexual Support Group—Meets the first and third Fridays of the month at noon in Building 111-117. Call the Employee Assistance Program at ext. 4-3680 or Randy Herrera at ext. 3-0664.

Parent Support Group—Meets the third Thursday of the month at noon. For location, call the Employee Assistance Program at ext. 4-3680.

Senior Caregivers Support Group—Meets the first Tuesday of the month at noon. For location, call the Employee Assistance Program at ext. 4-3680.

Friday, October 12

Travel Film—"The Best of Portugal" will be presented at 8 p.m. in Caltech's Beckman Auditorium. Tickets are \$9 and \$7. Call (626) 395-4652.

Monday, October 15

Caltech Ballroom Dance Club—A lindy hop class, taught by a professional instructor, will be held from 7:30 to 9 p.m. in Winnett Lounge, followed by a half-hour practice session. Cost: \$8 per lesson. Contact Megan Knight at knight@its.caltech.edu.

Tuesday, October 16

JPL Hiking+ Club—Meeting at noon in Building 238-543.

"Knowledge Capture: Part II"—Lynne Cooper, Section 346, will discuss solutions to challenges that she identified in a January 2001 knowledge capture presentation. Sponsored by the Institutional Computing and Information Services Office. To be held from 2:30 to 3:30 p.m. in von Kármán Auditorium.

Tues., Oct. 16–Wed., Oct. 17

Investment Advice—TIAA-CREF will hold individual counseling sessions. For an appointment, call (877) 209-3140, ext. 2614.

Wednesday, October 17

Caltech Ballroom Dance Club—A volunteer-taught cha-cha class will be held from 7:30 to 9 p.m. in Winnett Lounge, followed by a half-hour practice session. Cost: \$1 per lesson. Contact Megan Knight at knight@its.caltech.edu.

Ethics Training—A class is available to all personnel from 1:30 to 2:30 p.m. in von Kármán Auditorium. A list of training sessions is available at <http://hr/et>; search on the word "Ethics." The one-hour session is offered monthly or can be arranged for group presentation by calling Martha Avina, ext. 4-3154.

"Planning Your Retirement Income"—This Fidelity Investments workshop from 9 to 11 a.m. in Building 180-101 is for those who are less than five years from retirement. The presentation reviews in detail distribution options and building a financial plan as well as tax considerations and estate planning.

Thursday, October 18

TIAA/CREF Enrollment—At noon in T1720-137, employees newly eligible for Caltech/JPL retirement plan participation can receive help in selecting investment options and completing enrollment forms.

Social Security—A representative is available from 9:30 to 11:30 a.m. in the 167 cafeteria. No appointment is needed.

Von Kármán Lecture Series—Dr. Robert Parker, director of the NASA Management Office at JPL and a former astronaut, will present "The Earth as Seen from Space" at 7 p.m. in von Kármán Auditorium. Open to the public. For more information, see <http://www.jpl.nasa.gov/events/lectures/oct01.html>.

Friday, October 19

Von Kármán Lecture Series—Dr. Robert Parker, director of the NASA Management Office at JPL and a former astronaut, will present "The Earth as Seen from Space" at 7 p.m. in The Forum at Pasadena City College, 1570 E. Colorado Blvd. Open to the public.

Saturday, October 20

Celtic Music—Scottish harpist William Jackson will appear at 8 p.m. Caltech's Dabney Lounge. Tickets are \$12 for adults, \$4 for children under 12. Call (626) 395-4652 visit <http://www.cco.caltech.edu/~folkmusi>.

Luma Theatre of Light—This troupe, which uses illuminated objects to paint a world of colorful motion, will perform at 2 p.m. in Caltech's Beckman Auditorium. Tickets are \$10 for adults, \$5 for youth. Call (626) 395-4652.

Monday, October 22

Caltech Ballroom Dance Club—A lindy hop class, taught by a professional instructor, will be held from 7:30 to 9 p.m. in Winnett Lounge, followed by a half-hour practice session. Cost: \$8 per lesson. For more information, contact Megan Knight at knight@its.caltech.edu.

Wednesday, October 24

Caltech Ballroom Dance Club—A volunteer-taught cha-cha class will be held from 7:30 to 9 p.m. in Winnett Lounge, followed by a half-hour practice session. Cost: \$1 per lesson. Contact Megan Knight at knight@its.caltech.edu.

Caltech/JPL Flying Club—The fall general membership meeting will be held on campus at 7:30 p.m. 201 E. Bridge. Learn about the club's six planes at El Monte Airport and the opportunity to get your pilot's license.

Investment Advice—Fidelity will hold individual counseling sessions. For an appointment, call (800) 642-7131.

JPL Toastmasters Club—Meeting at 5 p.m. Guests welcome. Call Joy Hodges at ext. 4-7041 for location.

Nobel Prize Centennial—In celebration of the 100th anniversary of the Nobel Prize, Caltech will host a half-day symposium in Beckman Auditorium, starting at 2:30 p.m., highlighting the achievements of the institute's active Nobel laureates: Dr. David Baltimore, Dr. Edward Lewis, Dr. Rudy Marcus and Dr. Ahmed Zewail. Free admission. Call (626) 395-4652.

Thursday, October 25

Caltech Architectural Tour—The Caltech Women's Club presents this free service, which is open to the public. The tour begins at 11 a.m. and lasts about 1 1/2 hours. Meet at the Athenaeum front hall, 551 S. Hill St. Call Susan Lee at (626) 395-6327.

JPL Golf Club—Meeting at noon in Building 306-302.

Saturday, October 27

Inti-Ilmiani—This ensemble that performs traditional Andean music using more than 30 wind, string and percussion instruments will appear at 8 p.m. in Caltech's Beckman Auditorium. Adult tickets are \$29, \$25 and \$21; high school age and under, \$10. Call (626) 395-4652.

DR. JERRY SUITOR, MANAGER OF THE ENTERPRISE PROCESS AND STANDARDS PROGRAM OFFICE, DISCUSSES JPL'S ONGOING EFFORTS TO STREAMLINE, SIMPLIFY AND MAKE MORE EFFECTIVE THE PROCEDURES, POLICIES AND RULES UNDER WHICH THE LABORATORY OPERATES.

Q Dr. Charles Elachi has said he wants to simplify the management methods at the Lab. What does that mean?

Among its many attributes, JPL is a system engineering organization. Dr. Elachi wants us to apply the systems engineering discipline to the way we manage work. Our management system then becomes simple and straightforward.

Q What is the end result the Lab management is seeking?

A management system that simplifies, streamlines and standardizes the way we do our work. It is a system of interconnected processes tightly aligned with the current organizational structure. The system is supported by a clear set of rules and it adheres to an internationally acknowledged framework.

Q How do process, DMIE and ISO relate to each other?

They are all part of our management system. Process describes how work flows at JPL. The Design and Maintain the Institutional Environment (DMIE) Information System is the system of rules that governs the operation of that work. ISO gives us the framework for that system. ISO 9001 tells us the parts that make up a good management system and how those parts are supposed to interact. It also helps to identify deficiencies in the operational systems and correct them.

Q How did the concept of process come to JPL?

Process in the form of Process Based Management came to JPL as an attempt to better respond to the changing business environment that confronted the Laboratory in the early 1990s. Being faced with many smaller projects, we needed to work faster, eliminate duplication of efforts and share lessons learned so that we didn't waste time reinventing the wheel each time we began a new project. In the past, large projects such as Cassini and Galileo provided process and maintained the process infrastructure.

Today process management provides the institutional infrastructure by streamlining the non-creative, repetitive processes to help us get a quick start on each smaller project. Process is also an outgrowth of the Total Quality Management effort at the Lab. TQM had "continuous improvement" as one of its four "attitudes." In order to improve, you had to know the processes that you wanted to improve.

Q Does process relate to "Faster, Better, Cheaper?"

In order to have as many missions on the books as we currently have, we need a consistent way to conduct our business. A simple process-oriented management system provides a large part of that consistency. It can help us become more flexible and proactive by streamlining our work to move at a faster pace, reusing data, eliminating duplication of efforts and becoming more cost effective. Process and ISO 9001 also provide a mechanism of capturing lessons learned and guaranteeing that the lessons will propagate into future missions.

Q Is the process model being eliminated?

No. The model of interrelated processes continues to be used to describe how we get the work done here.

Q What is being done with respect to Process?

Process structure and the relationships of the processes are being completely reexamined. We are looking at ways to simplify the structure so that it is both easily understood and easier to use. We have allowed uncontrolled process growth to get in the way of doing our business in the effective manner that was the original motivation for structuring around processes. We need to re-examine and streamline the process structure. We also need to get that process structure fully aligned with the functional organizational structure. Some of the recent reorganization activities at JPL have made significant strides in that direction.

Q Are there any examples of how this is going?

Yes. A team led by Dr. Sharon Langenbeck, the Mechanical Engineering Section (352) manager, has looked at the hardware development process. The team is composed of section managers and others involved in hardware development. They have created a single, high-level procedure for how to develop hardware at JPL. They have even tailored the procedure for each of the project life cycles. This single procedure replaces six existing procedures and it is accepted by all organizations developing hardware. This activity represents a model of alignment of process and organization. It also represents a great example of how processes can be simplified.

Q Will certain "processes" be eliminated?

We will continue to do our work using processes. We have always used processes and will continue. We must. That being said, certain currently identified processes will be combined with other processes. We are currently discussing the realignment and streamlining of the processes and we hope to develop a simplified process structure soon.

PROCESS, RULES & ISO

Making
things simpler
and more
meaningful



Photos by Bob Brown / JPL Photo Lab

"... JPL is a system engineering organization.

Dr. Elachi wants us to apply the systems engineering discipline to the way we manage work."

Q What is being done with respect to DMIE?

In his inaugural speech on May 2, Dr. Elachi said that "we are going to re-examine the rules in DMIE and make them simple, clear, understandable, and accessible by all." The process called "Design and Maintain the Institutional Environment" covers a lot of territory, from process design to capture of rules in a data repository. The acronym DMIE has become a euphemism for the rules repository at JPL. That set of rules is currently being scrutinized and restructured in conjunction with Dr. Elachi's desire to simplify the rules system. The restructuring is also leading to simplification and substantial reduction in the rules.

Additionally, the repository access is being redesigned to provide easier access in a more intuitive manner. We have listened intently to the users of the system and have incorporated a large number of changes to the Web-based interface to the rules. More than 600 employees participated in selecting a new, more descriptive name for the rules repository. The DMIE Web site will be renamed "JPL Rules!" and will debut in November. We have also made use of outside experts in the area of documentation to better structure the documents for easier readability and understandability.

Q How do process and rules overlap?

Process and the rules are inextricably linked. The rules are organized around common processes that all organizations use. This avoids the replication of the same rules in multiple organizations.

Q What is the difference?

Processes are the way we do work. The JPL Rules! system is the repository of the rules that govern how we use our processes.

Q How soon do you anticipate the entire task will be complete?

We are hoping for the rules work to be completed in November of this year. Deputy Director Eugene Tattini is working with us on process restructuring, and we hope to have the work completed on a similar timeframe.

Back row, from left: Chief Information Officer Tom Renfrow; Patrick Ko; NASA Management Office Director Dr. Robert Parker; Division 360 manager Dr. Richard Doyle. Front row: Martin Orton, Lee Elson, David Hanks, Hari Nair .

Daily Planet

online for the JPL community

Classified ads will be available the day before Universe is published, at <http://dailyplanet>

JPL's online news source

View this and previous issues of Universe online <http://universe.jpl.nasa.gov>

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Notice to Advertisers
Advertising is available for JPL and Caltech employees, contractors and retirees and their families. No more than two ads of up to 60 words each will be published for each advertiser . Items may be combined within one submission. Ads must be submitted on ad cards, available at the ERC and the Universe office, Bldg. 186-118 , or via e-mail to universe@jpl.nasa.gov . Ads are due at 2 p.m. on the Monday after publication for the following issue.

All housing and vehicle advertisements require that the qualifying person(s) placing the ad be listed as an owner on the ownership documents.

Software team honored

JPL Chief Information Officer Tom Renfrow on Oct. 1 presented a NASA Honorable Mention Award to the JPL team that developed the Distributed Object Visualization Environment (DOVE) software application that enables scientists, educators and students to visualize and analyze meteorological data on most computer platforms.

Lee Elson, David Hanks, Patrick Ko, Hari Nair and Martin Orton received certificates and monetary awards for their contribution to NASA's suite of tools that support mission success.

Access to DOVE, also known as WebWinds, and information about the application are available at <http://webwinds.jpl.nasa.gov>. Also, a copy of a recent DOVE presentation is available on the CSMISS Web site at <http://csmiss>.



Passings

EVERETT HERRICK, 75, a retired senior storekeeper in Section 357, died of cancer Sept. 5 at his home in Altadena.

Herrick joined JPL in 1983 and retired in 1992. He is survived by his wife, Teri; daughters Julie and Vicki; sons David and John; and six grandchildren. Services were private.

Retirees

The following JPL employees retired in October:

David Norris, 41 years, Section 387; Nancy Short, 40 years, Section 252; Larry Dumas, 39 years, Section 100; Michael Ebersole, 38 years, Section 402; Antal Bejczy, 32 years, Section 345; Moroni Dewegeli, 30 years, Section 282; George Shultz, 21 years, Section 274; Louis Jespersen, 14 years, Section 512.

Letters

On behalf of my family and myself, I would like to thank everyone at JPL, both past and present, for the wonderful support, sympathy and enduring friendship that has been shown to us over the years and most recently upon the death of my husband. May God bless you all.

Ruth James and family

It has been a privilege to be allowed to explore the solar system with the greatest engineers and scientists in the world for the past three decades. As I set out on new uncharted trails I thank you all for giving me a career that has exceeded my wildest dreams.

Mike Martin

Classifieds

For Sale

AIRLINE VOUCHER, for America West flights to the continental USA & Mexico, \$450/obo. 714/526-1375.

ARTWORK, framed, professional matting, home/office, signed and numbered by artist, 32 x 28 in., \$10-20. 323/258-4464, after 6 p.m.

BABY ITEMS, low prices. 626/850-4378.

BEDROOM SET, full size, iron frame, box and mattress complete, exc. cond., \$200; MATTRESS, queen-size, good cond., \$50. 353-0841.

BOOKCASE, black, 6' 8" tall x 2' 8" wide x 11" deep, 5 adjustable shelves, attached light, IKEA modern, \$75. 626/798-4265.

BOOTS, brand new, Stride Rite, hiking boots for a little girl, size 8 1/2, deep magenta color, excellent support and sole, \$18. 626/798-6248.

CAMERA, Pentax, 28-80mm/3.5 autofocus zoom lens with skylight filter, great cond., in box, \$50/obo. 550-7555, Rob.

CEMENT MIXER, small, motorized, \$75. 323/662-4089.

CHAIR/LOVESEAT, exc. cond., hardwood frames, made in USA, nice stuff, see at <http://people.we.mediaone.net/futilitarian/pag> e3.html, \$250/obo for the pair. 730-5807.

ENTERTAINMENT CENTER, holds 27"- 30" TV, 4 adjustable shelves, glass front, VHS/CD storage, 5" wide x 4" tall x 20" deep, IKEA black modern, \$150. 626/798-4265.

ENTERTAINMENT CENTER, includes 54" Sony TV, complete stereo system with 5 CD changer and Dolby digital sound, custom-made cabinet, \$2,900/obo. 790-0112.

EXERCISE EQUIPMENT, Soloflex with butterfly attachment, vg. cond., \$300/obo.

661/296-4332.

FOSSILS, reducing a large collection, incl. starfish from Canada, Green River formation fish, fossils from Solnhofen Germany, dino tracks & others, view photos at <http://mow.ecn.purdue.edu/~stough/fossils.html>. 626/798-4265.

FURNITURE: oak, captain's bed, twin size, 4 drawers plus storage, \$90; dining table, square, dark solid oak, \$275. 710-7694 or banerdt@earthlink.net.

FUTON, made with cover and frame, \$250/obo. 626/796-8803.

HOCKEY TICKETS, Kings season ticket holders selling selected games, 2 exc. seats, \$95 for both. 626/852-0821.

LAMP, 1960s tiffany hanging, 2-tone light and dark gold glass, handmade, \$40/obo; MEDICINE CABINETS, new mirrored, 1 small oak frame, 1 small chrome frame, call for measurements, make offer. 626/798-3235.

PIANO, Clavinova digital, Yamaha CLP 411, 3 yrs. old, exc. cond., black, \$1,600/obo. 626-475-5790.

PLANTS, two purple Wisteria trees in 17" clay pots, \$25/ea/obo; rubber tree in 17" clay pot, \$25/obo. 626/791-6101.

POCKET PC, Cassiopeia E-125, 32 MB, \$350. 626/398-7262.

TABLES, coffee, fair cond., and 2 end tables, good cond., cherry wood, \$50/all; REFRIGERATORS, G.E., (2), white, 15 yrs old, runs well, \$100, beige, 17 yrs. old, side-by-side, \$100; SOFA/SLEEPER, makes into queen size bed, abstract design in black, blue & mauve, good cond., \$300. 626/357-8210.

TELESCOPE, 8", Celestron C8, Schmidt-Cassegrain 6, 17, 25, 40 mm eyepieces, Pelican case, bought in 1996, like new, \$1,300. czrider@pacbell.net or 626/798-4016.

VANITY DRESSING TABLE, antique wood, Art Deco, circa 1930s, mirror and 5 drawers, exc. cond., \$300. 368-9520.

VIDEO GAMES: for Sony Playstation, Shadow of Destiny, \$20; Ridge Racer V, \$15; Midnight Club, \$15; Fantavision, \$10; X-Squad, \$15; Gradius III, and IV, \$15; exc. cond., like new. 368-9520.

Vehicles/Accessories

'87 ACURA Integra LS, hatchback, 2 dr., coupe, 153K mi., good cond., 5-speed manual, moon roof, a/c, cassette deck, graphic equalizer, \$1,900. 249-8735.

'97 BMW 740iI, white, loaded, all possible extras, exc. cond., 1 owner, \$29,500. 360-6364.

'99 FORD Mustang, white, exc. cond., 40K miles, orig. owner, leather interior, CD, cruise control, 100K bumper-to-bumper, like new, \$16K. 909/971-9405, eves.

'96 FORD Escort LX, 5 speed, 2 dr., 59,000 miles, a/c, am/fm/cassette, pwr. mirrors, original owner, all records, exc. cond., cherry red with gray interior, \$5,700/obo. 909/980-3508.

'93 FORD Explorer XLT, wht. w/beige leather, 4 x 4, 4 L, V6, new LTX tires, all power, tow package, 122K mi., LoJack, immaculate, \$6,000. 626/441-2150.

'68 FORD Ranchero, 390, V8, GT package, C-6 auto w/console and bucket seats, 90% restored, almost everything new or rebuilt, fresh red paint, correct GT wheels and C-stripes, bed liner and cover, \$7,500/obo. 952-8984.

'95 HONDA Civic LX Sedan, 5 spd., a/c, new tires, 115K miles, 1 owner, exc. service cond., good body cond., great car, will miss it, \$5,500/obo. 626/564-1733.

'91 HONDA Accord LX wagon, 114K mi., auto. trans., runs well, 1-year-old tires, replaced battery, alarm; \$5,000/obo. 626/840-0555, leave msg.

'90 HONDA Accord LX, 4 dr., 5 spd., 1 owner, vg cond., w/maint. recs., 74K mi., a/c, am/fm/cass., cruise control, pwr. window/lock, new tires, \$5,500. 626/574-5733.

'90 JAGUAR XJ6 Sovereign, blue, 115,000+ miles, lic. no. 45BJ836, gd. cond., no service req'd., located in La Crescenta \$5,700. 541-0751.

'95 LINCOLN Mark VIII, loaded, full power, beige over tan leather, CD changer, chrome wheels, 84 k miles, well maintained, exc. cond., \$10,000/obo. 952-8984.

'90 MAZDA RX-7, convertible, 138K mi., 2 dr., white w/black top, blue leather, a/c, CD/tape/HiFi, glass rear window, RacingBeat exhaust, fast and fun, \$5,500. 841-4849 or hje@rocketship.com.

'91 NISSAN Pathfinder, 15,000+ orig. miles, 1 owner (rarely driven), 3.0 L V6, rear spoiler & running boards, burgundy (interior & exterior), \$7,000/obo. 626/284-9664.

'90 NISSAN 240SX SE Fastback, red, 5 speed, flip-up/removable sunroof, power steering, tilt wheel, cruise, AM/FM stereo, single owner, all records, 100K miles, good cond., \$3,500/obo. 323/467-4742.

'84 NISSAN 300Z, 2-dr. coupe, blue, 150K

mi., 1 owner, fair cond., \$1,500. 626/355-9723, Neil.

'92 PLYMOUTH Grand Voyager, 3.3 L, V6, very clean, runs good, gray, \$3,400/obo. 957-8463.

'98 PONTIAC Grand Prix GT, 2 dr., V6, 3.8 L, supercharged, showroom condition, 14K mi., black/black leather, all extras, \$17,000/obo. 310/937-1609.

'90 PONTIAC Transport van, 7 passenger, red with gray trim exterior, gray interior, good running cond., drastically below wholesale blue book value, \$1,750. 626/850-4378.

'92 SUBARU Legacy L Sedan, 4 dr., automatic trans, a/c, airbag, cassette, 161K mi., good cond., \$2,500. 626/398-5853.

'91 TOYOTA Camry V6 Wagon Deluxe, exc. cond. in and out, auto, A/C, orig. owner, \$4,700/obo. 548-5656.

'90 TOYOTA Camry LE, V6, exc. cond., loaded, including power moon roof, 125K miles, original owner, \$4,900. 626/398-3240.

'90 TOYOTA Camry LX, 4 dr., 4 spd., 4 cyl., 1 owner, vg. cond., a/c, am/fm, well-maintained, new tires, \$2,100. 790-3802, leave msg., or wd Wong3@aol.com.

'85 TOYOTA Tercel, 2 dr., hatchback, white, red int., 4 cyl., vg cond., air, am/fm, p/b, 68K mi., 10K on tires, just tuned up, new brakes, master cyl, \$1,100. 248-1549.

'83 TOYOTA Celica GTS, white, hatchback, body/interior in good cond., 5 spd., 120K mi., single owner, maintenance records available, \$1,600. 353-3325.

'85 VOLVO DL wagon, 94,000 miles, good cond., \$2,000/obo. 790-4455.

Wanted

ANTIQUE LINENS, white on white, hand embroidered, preferably monogrammed (any monogram), must be in exc. cond. 980-1638. COMPUTERS, used; start-up boys & girls club in underprivileged area seeks donations for a computer lab/homework program, also in need of sports equipment such as tennis rackets, balls, etc. 909/338-0225.

MOTORCYCLE, road, cross or dirt bike, inexpensive in working condition, 250-500 cc. 626/399-4449.

RENTAL, guest house/house/etc for elderly, handicapped (wheelchair) but independent woman who enjoys gardening, safe neighborhood, not too distant from JPL. 952-2581 or hbjulie@aol.com.

ROTISSERIE OVEN, in good/clean condition. 626/966-3677, Felipe or Paty.

SOPRANO, for 5-member a capella singing group, rehearsals on-Lab, varied repertoire, from barbershop to vocal jazz, now gearing up for Christmas performances. 626/303-4750, Karen McLaughlin.

SPACE INFORMATION/memorabilia from U.S. & other countries, past & present. 790-8523, Marc Rayman.

VIOLINS, for Loma Alta elementary students in Pasadena district: full, 3/4, and half-sizes needed, donations are tax-deductible. 626/791-2574.

VOLLEYBALL PLAYERS, coed, no beginners please, Tuesday nights 8-10 p.m at Eagle Rock High School, \$3/night. 956-1744, Barbara.

Lost & Found

LOST: Key ring w/3 Ford keys, 1 Camry & 1 house key, lost 3 wks ago, between 126 & 111. 4-3356.

For Rent

ARCADIA townhouse, unfurnished, bed & master bath, 15 minutes from JPL, walk-in closet, garage, d/w, w/d, a/c, fireplace, pool, quiet, professional roommates, convenient to grocery, restaurants, 10 minutes from Old Town, responsible professionals only, \$650 w/o garage, \$700 with + 1/3 utilities (~\$25) and deposit. 626/222-6943, Luke.

ARCADIA unfurn. bedroom in apt.: share bath with professional, male roommate; rest of place is nearly fully furnished: w/d, dishwasher, a/c, fireplace, off-street parking (limited); share w/2 other professional, quiet roommates in a convenient location; responsible professionals only; \$550 + 1/3 utilities (~\$25) and deposit. 626/222-6943, Luke.

BURBANK, 2-bd. house to share, beautiful built-ins, formal dining, exc. Verdugo Hillside area, lg. shaded yd. w/pool, spa, fruit trees, housecln. and water pd., will consider dog, \$740 + util. 848-4541.

LA CRESCENTA, spacious condo, 1 bd., 1 ba., above Foothill, 1-car enclosed garage, incl. gas, water and hot water, central a/c, + heat dishwasher, stove, trash compactor, hardwood floors, mountain views, laundry room, 10 min. to JPL, \$845. 952-5626.

LAGUNA HILLS, elegant house, 4 bd., 3 ba., a/c, wood floors, family room w/fireplace, wet bar, mirror walls, formal dining & living room, master bd. w/deck, large yard, garden-

er incl., \$2,300. 323/258-4464 or 949/859-2237.

MONROVIA house for lease, beaut. 2 bd., 1.5 ba., new paint in & out, new carpet, new ctrl air/ht., spacious rooms, f/p, attach dbl. gar., d/w, blinds, stove, lots of storage, 2 blks. from Arcadia, restaurant row, Huntington Bl. & 210 fwy, best for single or couple, \$1,200. 626/437-6214.

MONROVIA, room in house, no pets, female preferred, central a/c, driveway parking, kitchen privileges, \$600 including utilities + 1 month security deposit. 626/305-0914.

NORTH ALHAMBRA, borders South Pasadena, 2 bd., 1 ba., upstairs rear unit apartment, kitchen furnished with all appliances, all utilities incl., very private, \$1,150 + \$1,150 dep. 626/570-6123.

PASADENA, 1921 restored Mission-style house, 3 bd., 1.75 ba., 2,150 sq. ft., recent kitchen and bathrooms, 2 miles from Caltech, no pets, \$2,200. 790-4249.

PASADENA house near JPL, 2 bd., 1 ba., fireplace, central heat/air, tiled kitchen and bath, large yard, walk to Rose Bowl area. 626/683-1721.

PASADENA, furn. apt. to share w/Caltech student, 2 bd., 1.5 ba., central air, parking, laundry, \$575 + utilities. 626/351-9641.

PASADENA, furnished apt., 1 bd., 1 ba., newly renovated, close to PCC and Caltech, covered parking, \$895 + utilities. 626/351-9641.

PASADENA, studio condo, 1115 E. Cordova, gated facility, fully furnished, pool, patio, lounge areas, carport, laundry, no pets, non-smoker, tenant pays electric, \$825. 626/792-9053, Marilyn or Ray.

PASADENA, roommate to share 2-bd., 2-ba. apt., female preferred, near Lake and 210, separate phone line, secured bldg., pool, whirlpool, BBQ, laundry facilities in complex, \$600 + half utilities (gas, electric, cable ~\$60), month-to-month lease. 626/795-8197. Denise.

Real Estate

MAMMOTH LAKES condo unit, 1 bd./loft, 2 ba., exc. cond., newly redecorated & refurn., floor to beamed ceiling, fireplace in living room, balcony offers superb Mammoth Mtn. view, all elec. kitchen, desirable location in complex, close to Canyon Lodge & lifts, potential rental income, \$189,500. 249-8524. SEQUOIA, R-Ranch, 1 share with grant deed, 750 acres, horses, lake, cabins, nature, \$1,400. 626/287-3146.

Vacation Rentals

BIG BEAR LAKEFRONT, luxury townhome, 2 decks, tennis, pool/spa, beautiful master bd. suite, sleeps 6. 949/786-6548.

CAMBRIA, ocean front house, sleeps up to 4, excellent view. 248-8853.

HAWAII, Kona, ocean front on Keauhou Bay, house and guest house comfortably sleep 6, 3 bd., 2 ba., rustic, relaxing and beautiful, swimming, snorkeling, fishing, spectacular view, near restaurants, golf and other attractions. 626/584-9632.

HAWAII, Maui condo, NW coast, on beach w/ocean view, 25 ft. fr. surf, 1 bd. w/loft, compl. furn., phone, color TV, VCR, microwave, d/w, pool, priv. lanai, slps. 4, 4/15-12/14 \$105/nite/2, 12/15-4/14 \$120/nite/2, \$15/nite/add'l person. 949/348-8047.

MAMMOTH, Chamonix condo, 2 bd., 2 full ba., walk to lifts 7, 8, 16, 17 and Canyon Lodge, sleeps 6, fully equipped elec. kitchen, w/microwave & extras, f/p and wood, color TV, cable, FM stereo, VCR, pool & sun areas, o/d Jacuzzi, sauna, game, rec. & Indry rms., conv. to shops, special events, daily/weekly rates, summer rates thru Oct. 249-8524.

MAMMOTH, Courchevel, fully equipped unit 2 bd., 2 ba., sleeps 6, summer rates for summer activities, fishing, mountain biking, hiking. 661/255-7958.

MAMMOTH, Snowcreek, 2 bd., 2 ba., + loft., sleeps 6-8, fully equipped kitchen incl. microwave, d/w, cable TV, VCR, phone, balcony w/view to mtns., Jacuzzi, sauna, streams, fishponds, close to Mammoth Creek, JPL discount. 626/798-9222 or 626/794-0455.

OCEANSIDE condo, fully furn. 2 bd., 2 ba., fireplace, full kitchen, quiet, relaxing, beautiful setting at beachside, with barbecue, pool, spa, game room, and great ocean view, easy walk to pier and restaurants, sleeps 6, available weekly or monthly. 909/981-7492, Darlene or dfhauge@yahoo.com.

OCEANSIDE, on the sand, charming 1 bd. condo, panoramic view, walk to pier & harbor, pool/spa, game rm., sleeps 4. 949/786-6548.

PACIFIC GROVE hse, 3 bd., 2 ba., f/p, cable tv/vcr, stereo/CD, well-eqpd. kit w/microw, beaut. furn. close to golf, bches, 17 mile dr, Aquarium, Cannery Row, JPL discnt. 626/441-3265.